Langohr Sediment Trap Design/Build Report

Kosciusko County, Indiana

April 28, 2004

Prepared for:

Tippecanoe Environmental and
Lake Watershed Foundation
P.O. Box 55
North Webster, IN 46555
574-834-3242

Prepared by:

708 Roosevelt Road
Walkerton, Indiana 46574
574-586-3400

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LANGOHR SEDIMENT TRAP DESIGN/BUILD REPORT
KOSCIUSKO COUNTY, INDIANA

1.0 PROJECT DESCRIPTION AND PURPOSE

The project site is located on the property of William and Kit Langohr at 980 South State Road 13 in Kosciusko County, Indiana (Figure 1). The project was initially conceived and designed by the Natural Resource Conservation Service (NRCS) in 1996 and eventually funded by the Indiana Department of Natural Resource's (IDNR) Lake and River Enhancement Program (LARE). The purpose of the project was to reduce the delivery of sediment and associated nutrients to Ridinger Lake, the Barbee Lakes and Lake Tippecanoe from Grassy Creek. Grassy Creek begins as the outlet of Ridinger Lake. Ridinger Lake accepts drainage from Elder Ditch and Shanton Ditch. The project involved rerouting 1,250 linear feet of the Liefer Arm of Shanton Ditch through a constructed sediment trap and wetland filter located on the Langohr property. The project was constructed in a drained wetland that was previously used for grazing. The project is one part of an effort to improve water quality within the Upper Tippecanoe River watershed

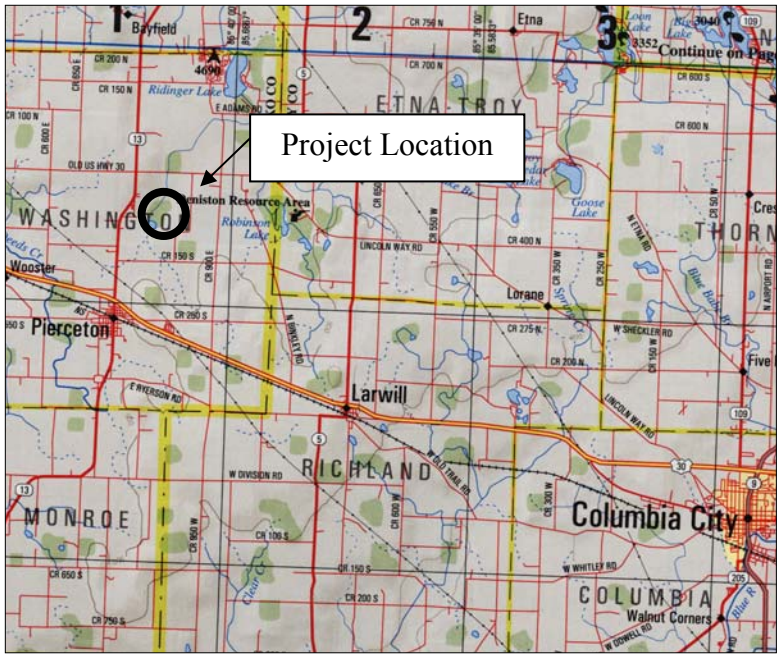


Figure 1. Langohr project location.

2.0 DESIGN RATIONALE

The project was designed to remove suspended sediments and associated nutrients from the Liefer Arm of Shanton Ditch by routing water from the ditch through a constructed sediment trap and wetland filter then returning it to the ditch. The design routed the ditch into a deep settling pool that was ten times wider than the existing ditch and then through a shallow water wetland of the same width to enhance sediment deposition and nutrient uptake. A water level control structure was designed at the downstream end of the sediment trap and wetland filter to allow the pond to be lowered during maintenance activities. A rock check dam was designed to act as the

primary outfall at the end of the wetland filter. The rock check dam height was designed to control the permanent pool elevation of the sediment trap and wetland filter.

3.0 DESIGN AND CONSTRUCTION SPECIFICS

3.1 Preliminary Design

The original design was completed and approved by the NRCS. The design called out six-foot wide bottom channel with 2:1 side slopes conveying water down a 300 foot channel before dropping into a ten-foot deep pool 300-feet long and 100- feet wide measured from the top of the bank to the top of the bank in each direction. After the pool, the water was designed to enter a one-foot deep shallow water wetland area approximately 300 feet long and 150 feet wide. This area was designed to fill with aquatic vegetation and filter the sediment from the water column. The water then flowed back into a conveyance channel similar to the first reach and ended at a rock check dam approximately one-foot below the existing ground elevation. An eight-inch in-line water control structure was designed to exit the shallow water conveyance channel just before the rock check dam and empty into the original ditch. This structure was intended to be able to drain the sediment pond to the bottom elevation of the conveyance channel, which would assist in cleaning sediment from the deep pool. An at-grade rock crossing was designed into the project to allow crossing of the conveyance channel.

3.2 Permitting

Permits were required from the Army Corps of Engineers (COE), the Indiana Department of Environmental Management (IDEM), and the IDNR for this project. The design plans called for excavation and discharge of fill material in a portion of the existing stream channel and 1/10 acre of wetland adjacent to the pond, therefore the project required Section 401 Water Quality Certification from IDEM and a Section 404 permit from the COE. The Indiana Department of Environmental Management granted Section 401 Water Quality Certification for the project on November 3, 1995. Due to the delay in project implementation, a Section 401 Water Quality Certification Regional General Permit Notification was submitted to IDEM on October 2, 2002. The Army Corps of Engineers determined that the project qualified for a Nationwide General Permit Number 26 for the discharge of dredged or fill materials into headwaters or isolated "waters of the United States". The Nationwide General Permit was issued on August 30, 1995. New regulations passed since the original permit allowed up to 1/10 acre of fill without notification to the Corps of Engineers under a Regional General Permit in 2003. A Ditch Reconstruction Permit from the IDNR was originally issued on February 7, 1996 when the project was first conceived. However, due to the delay in project implementation, a new permit (Construction in a Floodway Permit) was obtained from the IDNR on March 14, 2003. The Kosciusko County Drainage Board approved the project for the NRCS in 1995 and did not require a new permit. Permit correspondence is contained in Appendix A.

3.3 Ditch and Sediment Trap Construction

Approximately 1,250 linear feet of new channel (ditch), including the sediment trap, was constructed for this project. An excavator dug a new channel measuring 6-foot wide along the bottom with 3:1 or flatter slopes. The average depth of the channel was 4.5 feet from the top of bank. The sediment trap or pool area was constructed to measure approximately 80 feet wide

and 300 feet long with depths ranging from 8-12 feet below grade. The wetland filter located downstream of the sediment trap was constructed to measure approximately 150 feet wide and 300 feet long with a 2.5-foot water depth. Approximately 14,000 cubic yards of material excavated from the ditch and sediment trap construction was side cast and spread along the northern and western bank of the project and used to reinforce an existing pond upslope. Spoil material was later finish graded after the spoils had been allowed to sufficient time to dry.

Approximately 100 cubic yards of spoil material was used to block the existing drainage ditch so that all of the water in the ditch could be routed through the sediment trap and wetland filter. Approximately 20 cubic yards of glacial rock was used to line the outfall back into Shanton Ditch on the north end of the newly constructed channel. Additionally, 20 cubic yards of glacial stone was used to create an at-grade crossing of the new channel. However, after the channel crossing was installed it was decided that the muck soils would not support a crossing as designed. Three-30-inch plastic culverts were obtained by the owner and installed at no additional cost to resolve this issue.

The in-line water control structure at the check dam was installed wrong and was found to be inadequate for its intended purpose of draining the sediment trap even if installed correctly. A decision was made with LARE program staff and the project engineer to eliminate the water control structure and leave the eight-inch pipe in-place under the check dam with a gate valve on it for future use. A rubber end cap was eventually substituted for the gate valve (to reduce the potential for vandalism) and placed on the upper end of the pipe. The rock check dam elevation ended up being only six inches below grade due to inadequate survey information provided with the original plans and therefore wetland conditions are developing in the vicinity of the outlet. Original and as-built site plans can be found in Appendix C.

3.4 Native Plantings

All disturbed upland areas and slopes were planted with a native seed mix after finish grading. The wetland filter margins were planted with river bulrush (*Scirpus fluviatilis*) plugs along the waterline. The river bulrush was planted on approximately 2-foot centers. Eventually the river bulrush will spread further out into the wetland filter to improve the functionality of the sediment trap. A complete planting list is included in Appendix D.

4.0 CONSTRUCTION SCHEDULE

The subcontractor for the construction of the new ditch and sediment trap received a work authorization letter on March 25, 2003. Construction began during the last week of April of 2003. Spring rains coupled with the project site conditions (muck soils) delayed construction after only three days of work. Construction began again on October 6, 2003. Approximately 70 percent of the project was complete by December of 2003. Poor weather and site conditions between December 2003 and March 2004 further delayed the completion grading and planting) until April of 2004. The project was completed by the end of April 2004.

5.0 MONITORING AND MAINTENANCE ACTIVITY

Dredging of the sediment trap will be necessary in the future to maintain the project's functionality. A member of the Tippecanoe Environmental Lake & Watershed Foundation (TELWF) or their assigned agent should monitor the sediment trap on an annual basis. The individual conducting the monitoring should record the depth of the sediment trap area from the top of bank to the bottom at 10 to 15-foot intervals along the entire length of the sediment trap. These measurements should be compared with elevations provided on the as-built plans. Decreasing depths to the bottom of the sediment trap would indicate that the sediment trap is filling in with sediment. Maintenance dredging of the sediment trap should be considered once it is greater than 70% full.

6.0 PROJECT SUMMARY

The overall purpose of the project is to reduce the delivery of sediment and associated nutrients to Ridinger Lake and other connected water bodies within the Grassy Creek watershed. The project is part of an effort to improve the water quality with the Upper Tippecanoe River watershed. This goal was accomplished by rerouting Liefer Arm of Shanton Ditch through a constructed sediment trap and wetland filter located on the Langohr property. The functionality of the sediment trap will be further enhanced once the emergent plant community is established. We expect that the sediment trap and filter will not be 100 percent functional until the wetland area is fully vegetated, which may take up to five years. Maintenance dredging of the sediment trap will be a necessity in the future if the project is to be a lasting success.

APPENDIX A
PERMIT LETTERS

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We make Indiana a cleaner, healthier place to live

Evan Bayh
Governor
Kathy Prosser
Commissioner

100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015
Telephone 317-232-8603
Environmental Helpline 1-800-451-6027

November 3, 1995

VIA CERTIFIED MAIL Z 339 939 797

Mr. Samuel E. St. Clair
Natural Resource Conservation Service
217 E. Bell Dr.
Warsaw, Indiana 4646580

Dear Mr. St. Clair:

Re: Section 401 Water Quality Certification
Project: Sediment basin/wetland on the Langohr property
COE No: 199501100-lad
Kosciusko County

Office of Water Management staff have reviewed your correspondence dated September 18, 1995, requesting Section 401 Water Quality Certification to construct a sediment basin/wetland on the Langohr property to improve the siltation and nutrient loading problem on Pierceton Lake. The proposed project would result in the creation of approximately 3.0 acres of shallow open water and approximately 1.5 acres of fill to a Reed Canary Grass dominated, farmed wetland. The proposed plan includes seeding the disturbed areas with emergent vegetation and includes plantings of varies woody species.

Based on the site investigation and available information, it is the judgment of this office that the proposed project will not cause a significant impact to water quality but will most likely improve water quality in Pierceton Lake provided that conditions set forth by the State are incorporated into the project. Therefore, subject to the following conditions, the Office of Water Management hereby grants Section 401 Water Quality Certification:

1. The project engineer at the construction site will ensure that construction limits shown in the plans attached to the correspondence of September 18, 1995, will be clearly marked at all times during construction.

2. The contractor performing the actual operations must comply with Section 311 of the Federal Clean Water Act and with 327 IAC 2-6 (formerly Indiana Stream Pollution Control Board Regulation 330 IAC 1-6-1) concerning spills of oil and hazardous materials.

3. Deposition of dredged or excavated materials and all earthwork operations will be carried out in such a manner that soil erosion and sediment runoff to any nearby watercourse are controlled and minimized. The use of straw bale barriers, silt fencing, or an earthen berm around disturbed areas is recommended to prevent soil from leaving the construction site. Areas used for deposition of dredged materials should be provided with temporary dikes or bulkheads for separation and retention of solids. Vegetative cover should

be established on dredged or excavated material as soon as possible.

4. The seeding/planting plan shall be consistent with the August 3, 1995, correspondence to the Corps of Engineers included in your application.

This certification is effective 18 days from the mailing of this notice unless a petition for review and a petition for stay of effectiveness are filed within this 18 day period. If a petition for review and a petition for stay of effectiveness are filed within this period, any part of the permit within the scope of the petition for stay is stayed for 15 days, unless or until an Environmental Law Judge further stays the permit in whole or in part.

This decision may be appealed in accordance with IC 4-21.5, the Administrative Orders and Procedures Act. The steps that must be followed to qualify for review are:

1. You must petition for review in a writing that states facts demonstrating that you are either the person to whom this decision is directed, a person who is aggrieved or adversely affected by the decision, or a person entitled to review under any law.

2. You must file the petition for review with the Office of Environmental Adjudication (OEA) at the following address:

   Office of Environmental Adjudication
   ISTA Building
   150 West Market Street
   Suite 618
   Indianapolis, IN 46204

3. You must file the petition within eighteen (18) days of the mailing date of this decision. If the eighteenth day falls on a Saturday, Sunday, legal holiday, or other day that the OEA offices are closed during regular business hours, you may file the petition the next day that the OEA offices are open during regular business hours. The petition is deemed filed on the earliest of the following dates: the date it is personally delivered to the OEA; the date that the envelope containing the petition is postmarked if it is mailed by United States mail; or, the date it is shown to have been deposited with a private carrier on the private carrier's receipt, if sent by private carrier.

Identifying the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, or date of this notice will expedite review of the petition.

Note that if a petition for review is granted pursuant to IC 4-21.5-3-7, the petitioner will, and any other person may, obtain notice of any prehearing conferences, preliminary hearings, hearings, stays, and any orders disposing of the proceedings by requesting copies of such notices from the OEA.

Granting of Section 401 Water Quality Certification does not relieve the applicant from the responsibility of obtaining any other permits or authorizations that may be required for this project or related activities from the Indiana Department of Environmental Management (IDEM) or any other agency or person.

If you have any questions regarding this decision, contact Mr. Brett Crump, Project Manager, of my staff at 317/243-5027, or you can reach the Office of Water Management

through the IDEM Environmental Helpline (1-800-451-6027).

If you have procedural questions regarding filing a petition for review you may contact the OEA at 317-232-8591.

Sincerely,

R.J. Henley
Assistant Commissioner
Office of Water Management

cc: Ms. Lee Anne Devine
U.S. Army Corps of Engineers
Louisville District

Mr. William & Willodean Langohr
980 South State Road 13
Pierceton, IN 46562

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
P.O. BOX 59
LOUISVILLE, KENTUCKY 40201-0059

August 30, 1995

Operations and Readiness Division
Regulatory Branch (North)
ID No. 199501100-lad

Mr. William E. Langohr
980 South State Road 13
Pierceton, Indiana 46562

Dear Mr. Langohr:

This is in regard to your application dated July 21, 1995, concerning a proposal to construct/restore a sediment basin to remove sediment and nutrients from the water in Shanton Ditch just upstream from Pierceton Lake, in Kosciusko County, Indiana. We have reviewed the information you submitted in order to determine whether a Department of the Army (DA) permit will be required under the provisions of Section 404 of the Clean Water Act.

We have completed our review which required coordination with other Federal and State agencies. In this case, we have determined that the proposed work would be authorized under the provisions of Nationwide General Permit (NWP) No. 26 for the discharge of dredged or fill material into headwaters or isolated "waters of the United States," including wetlands. Therefore, an individual DA permit will not be required provided you comply with the enclosed NWP Conditions and you obtain a site specific Water Quality Certification (WQC) from the Indiana Department of Environmental Management (IDEM). You can write to IDEM at:

Indiana Department of Environmental Management
P.O. Box 6015
Indianapolis, Indiana 46206-6015.

If IDEM fails to respond to your request for authorization within 60 calendar days, the WQC is considered waived. The responsibility for obtaining the state WQC rests with you. Once you obtain your certification or waiver, and provided the proposed work has not been modified, you may proceed with construction without further contact or verification from us. This verification is only valid for 2 years from the date of this letter.

October 10, 2002

Mary Lou Renshaw
Indiana Department of Environmental Mgmt.
Office of Water Quality
PO Box 6015
Indianapolis, IN 46206-6015

Dear Lou,

Attached is a notification for a sediment trap and wetland filter that will impact under 0.1 acres of wetland. This project was previously granted and the original 1995 401-certification is attached. Minor modifications to the project plans have been proposed to reduce costs and to eliminate the majority of the wetland fill. We have also submitted an application to the IDNR for construction in a floodway. Please let us know if we can not rely on the regional permit notification for this project. Thank you.

Sincerely,

John Richardson
J.F. New & Associates, Inc.
574-586-3400

cc: Lynn Stevens, Tippecanoe Environmental Lake & Watershed Foundation

Indiana Department of Environmental Management
Office of Water Quality
Section 401 Water Quality Certification Program

Regional General Permit - IDEM Notification Form (Revised January 1, 2002)

OR IDEM USE ONLY	*Date Rec'd*	*IDEM ID:*

Applicant Information

pplicant: William Langohr C/O	Agent: J. F. New and Associates, Inc.
ontact person: Lynn Stevens	Contact person: John Richardson
ddress: TELWF PO Box 55 lorth Webster IN 46555	708 Roosevelt Road Address: Walkerton, Indiana 46574
hone: 574-834-3242	Phone: 574-586-3400

Project Location

ounty: Kosciusko, County, IN		Nearest Town: Pierceton	
uad: Pierceton	Township: 32N	Range: 7E	Section: 22
atitude:	Road Directions: US 30 east of Warsaw to Pierceton. Turn north on State Road 13 1.2 miles north of US 30. Gravel Drive is on east side of road. Address is 980 S. State Road 13.		
ongitude:			

Existing Conditions

'etlands:	YES	Acreage onsite: over one acre	
'etland type:	Emergent		
tream:	YES	Stream name: Shanton Ditch – Liefer Arm	
pen water:	NO	Open water type: N/A	

Project Impacts

ctivity description: Construction of an SWCD engineered sediment trap and wetland filter in a drained arsh. The project will result in 1.1 acres of shallow marsh (approximately one foot deep) and pproximately 0.7 acres of open water sediment trap. The wetland impact area is the drainage from an djacent pond and will be filled by spoils from the trap. The water from the filled drainage will be rected into the new wetland filter.

urpose of project: To reduce downstream flooding, sediment and nutrient loading into the upper ppecanoe River system.

cres of wetland impact - Emergent: 0.09 or less

near feet of stream impact: Ditch plug 0.005 cres or less Ditch is 4-feet wide at bottom and 8 et wide at OHWM Plug is 30 feet long	Acres of open water impact: none
rea of riprap below the Ordinary High Water Mark: 10-20 square feet at outlet of structure into xisting ditch	

Indiana Department of Environmental Management
Office of Water Quality
Section 401 Water Quality Certification Program

ignature of Applicant - Statement of Affirmation

certify that I am familiar with the information contained in this notification and, to the best of my nowledge and belief, such information is true and accurate. I certify that I have the authority to ndertake and will undertake the activities as described in this notification. I am aware that there are enalties for submitting false information. I understand that any changes in project design subsequent IDEM's granting of authorization to discharge to a water of the state are not authorized and I may be ubject to civil and criminal penalties for proceeding without proper authorization. I agree to allow epresentatives of the IDEM to enter and inspect the project site. I understand that the granting of other ermits by local, state, or federal agencies does not release me from the requirement of obtaining the uthorization requested herein before commencing the project.

pplicant's Signature: _____ Date: _____

rint Name: _____ Title: _____

ubmit this form and a copy of the USGS Quadrangle map showing the location of the project clearly enoted on the map to:

ıdiana Department of Environmental Management
ffice of Water Quality
ection 401 Water Quality Certification Program
.O. Box 6015
ıdianapolis, Indiana 46206-6015

lease note:

IDEM will review this form for completeness and accuracy. You will be contacted within 10 working days of the receipt of this form only if problems are identified. IDEM may require additional information to verify that the project meets all conditions of the Regional General Permit and the Section 401 WQC. If you are not contacted by IDEM within 10 working days of the receipt of this form by IDEM, your project is thereby authorized, subject to the terms and conditions of the Section 401 Water Quality Certification and its conditions. You will not receive a written confirmation of authorization.

Read all the terms and conditions of this regional general permit, including all U.S. Army Corps of Engineers and Indiana Department of Environmental Management conditions. Do not submit this form or commence work on the proposed project until you understand and are familiar with the limitations and restrictions of this regional general permit.

United States Department of Agriculture

Natural Resources Conservation Service

217 E. Bell Dr.
Warsaw, In.

Nov. 9,1995

Mr. Scott McClearny
Permit Administration Section
Division of Water - IDNR
Room W264
402 W. Washington St.
Indianapolis, In. 46204

Dear Scott,

This letter is to verify the information that I shared with you during our telephone conservation this morning about the Bill Langohr Project, Application # DR - 262.

All of the area affected by our proposed project lays north and west of the Shanton Ditch and south and east of Pierceton Lake. (see sheet 2 of 6 on engineering plans). We will not do anything in the lake or in the ditch below elevation 861 which is the present elevation of Pierceton Lake.

The bottom of the sediment basin that we intend to construct will be from 1 foot to 5 feet below elevation 861 (see sheet 3 of 6 on engineering plans). The bottom dimensions of this sediment basin are 50 feet by 300 feet or 0.34 acres.

If you need further information please contact me at 219-267-5726.

I will submit the proof of public notice as soon as the Langohr's present it to me.

Because of the delay by this permit application, this project will probably not be constructed until late summer 1996. I hope that the permit period will allow this time frame.

Sincerely,

SAMUEL E ST.CLAIR
District Conservationist

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

CERTIFICATE OF APPROVAL
DITCH RECONSTRUCTION

PLICATION #: DR-262

REAM : Shanton Ditch

'PLICANT : William And Willodean Langohr
980 South State Road 13
Pierceton IN 46562

ENT : Samuel E. St.Clair
217 East Bell Drive
Warsaw IN 46580

ITHORITY : IC 14-26-5

SCRIPTION : Redirect a portion of Shanton Ditch (inlet to Pierceton Lake) by constructing a sediment basin through an existing wetland area adjacent to Shanton Ditch. The construction will start at Station 13+10 and will extend through the existing wetland area toward the lake approximately 300' to Station 16+10. Dredging activities will render a bottom width at Station 13+10 of 14' and increasing to a bottom width of 120' at Station 16+10 and a maximum bottom elevation of 856.0', M.S.L. The bottom level of the ditch beginning at Station 13+10 to 16+10 is below Pierceton Lake's average normal elevation of 861.00', M.S.L. Details of the project are contained in plans and information received at the Division of Water on July 24, 1995, November 29, 1995 and January 31, 1996.

)CATION : Inlet ditch to Pierceton Lake near Pierceton, Washington Township, Kosciusko County
NW¼, SW¼, NE¼, Section 22, T 32N, R 7E, Pierceton Quadrangle
UTM Coordinates: Downstream = 4563500 North, 609125 East

'PROVED BY : David L. Herbst
David L. Herbst
Deputy Director
Department of Natural Resources

'PROVED ON : February 7, 1996

:achments: Notice Of Right To Administrative Review
General Conditions
Special Conditions
Service List

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

NOTICE OF RIGHT TO ADMINISTRATIVE REVIEW

APPLICATION #: DR-262

iis signed document constitutes the issuance of a permit by the Natural Resources Commission, or its signee, subject to the conditions and limitations stated on the pages entitled "General Conditions" and pecial Conditions".

ie permit or any of the conditions or limitations which it contains may be appealed by applying for ministrative review. Such review is governed by the Administrative Orders and Procedures Act, IC 4-21.5, id the Department's rules pertaining to adjudicative proceedings, 310 IAC 0.6.

order to obtain a review, a written petition must be filed with the Division of Hearings within 18 days of e mailing date of this notice. The petition should be addressed to:

Mr. Stephen L. Lucas, Director
Division of Hearings
Room W272
402 West Washington Street
Indianapolis, Indiana 46204

ie petition must contain specific reasons for the appeal and indicate the portion or portions of the permit which the appeal pertains.

an appeal is filed, the final agency determination will be made by the Natural Resources Commission llowing a legal proceeding conducted before an Administrative Law Judge. The Department of Natural esources will be represented by legal counsel.

MAILED MAR 14 2003

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

CERTIFICATE OF APPROVAL
CONSTRUCTION IN A FLOODWAY

CATION # : FW-22111

AM : Unnamed Tributary Shanton Ditch

CANT : Tippecanoe Environmental Lake and Watershed Foundation
Lynn Stevens
PO Box 55
North Webster, IN 46555-0055

T : JF New & Associates, Inc
John Richardson
708 Roosevelt Road, Suite A
Walkerton, IN 46574-1220

ORITY : IC 14-28-1 with 312 IAC 10

RIPTION : A portion of the Liefer Arm of Shanton Ditch will be rerouted. The new channel will be approximately 1250' long. It will be 4.5' deep, with a 6' bottom width and 2:1 sideslopes. A sediment trap and wetland filter will be constructed at the downstream end of the new channel. The trap will be 8' to 12' deep, 300' long, and 100' wide, with 5:1 sideslopes. The wetland filter will be approximately 5' deep, 300' long, and 150' wide, with 5:1 sideslopes. Approximately 100 cubic yards of the spoils will be used to create a complete blockage of the existing branch so that all of the water in the existing ditch can be routed through the wetland filter. About 20 cubic yards of glacial stone will line the outfall back into the ditch. Also, about 20 cubic yards of glacial stone will be used to create an at-grade crossing in the new ditch. Material excavated from the construction of the new channel will be spread on adjacent areas to the west of the project. Details of the project are contained in information and plans received at the Division of Water on October 15, 2002 and February 13, 2003.

TION : Approximately 2200' east of State Road 13; beginning approximately 1550' upstream (south) of the Pierceton Lake inlet and continuing upstream approximately 800' near Pierceton, Washington Township, Kosciusko County
NW¼, SE¼, NE¼, Section 22, T 32N, R 7E, Pierceton Quadrangle
UTM Coordinates: Downstream 4563500 North, 609125 East

OVED BY : James J. Hebenstreit

James J. Hebenstreit, P.E., Assistant Director
Division of Water

OVED ON : March 14, 2003

S: Notice Of Right To Administrative Review
General Conditions
Special Conditions
Service List

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

GENERAL CONDITIONS

APPLICATION #: FW- 22111

archaeological artifacts or human remains are uncovered during construction, federal law and regulations (16 USC 470, et seq.; 36 CFR 800.11, et d State Law (IC 14-21-1) require that work must stop and that the discovery must be reported to the Division of Historic Preservation and eology within 2 business days.

Division of Historic Preservation and Archaeology
Room W274
402 West Washington Street
Indiananpolis, IN 46204

Telephone: (317) 232-1646, FAX: (317) 232-8036

ermit must be posted and maintained at the project site until the project is completed.

ermit does not relieve the permittee of the responsibility for obtaining additional permits, approvals, easements, etc. as required by other federal, or local regulatory agencies.These agencies include, but are not limited to:

Agency	Telephone Number
Kosciusko County Drainage Board	(574) 372-2367
US Army Corps of Engineers, Louisville District	(502) 315-6733
Indiana Department of Environmental Management	(317) 233-2471
Local city or county planning or zoning commission	

ermit must not be construed as a waiver of any local ordinance or other state or federal law.

ermit does not relieve the permittee of any liability for the effects which the project may have upon the safety of the life or property of others.

ermit may be revoked by the Department of Natural Resources for violation of any condition, limitation or applicable statute or rule.

ermit shall not be assignable or transferable without the prior written approval of the Department of Natural Resources. To initiate a transfer contact:

Mr. Michael W. Neyer, PE, Director
Division of Water
Room W264
402 West Washington Street
Indianapolis, IN 46204

Telephone: (317) 232-4160, Toll Free: (877) 928-3755
FAX: (317) 233-4579

epartment of Natural Resources shall have the right to enter upon the site of the permitted activity for the purpose of inspecting the authorized work.

ceipt and acceptance of this permit by the applicant or authorized agent shall be considered as acceptance of the conditions and limitations stated pages entitled "General Conditions" and "Special Conditions".

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

SERVICE LIST

APPLICATION #: FW- 22111

ɜ Environmental Lake and Watershed
ıns

ster, IN 46555-0055

l Willodean Langohr
State Road 13
N 46562-9193

County Area Plan Commission
e, 1st Floor, Room 26
enter Street
46580-2872

JF New & Associates, Inc
John Richardson
708 Roosevelt Road, Suite A
Walkerton, IN 46574-1220

US Army Corps of Engineers, Louisville District
Jim Townsend
Regulatory Functions Branch
PO Box 59
Louisville, KY 40201-0059

Kosciusko County Soil and Water Conservation District
217 Bell Drive
Warsaw, IN 46580-9362

Kosciusko County Drainage Board
County Surveyor
Courthouse, Room 103
100 West Center Street
Warsaw, IN 46580-2872

Indiana Department of Natural Resources
North Region Headquarters Dist 1
Division of Law Enforcement
RR 6 Box 344
Peru, IN 46970-9030

ınment:

trative : Kelly B. Hall
al : Malinda J. Fultz
mental : Christie L. Kiefer

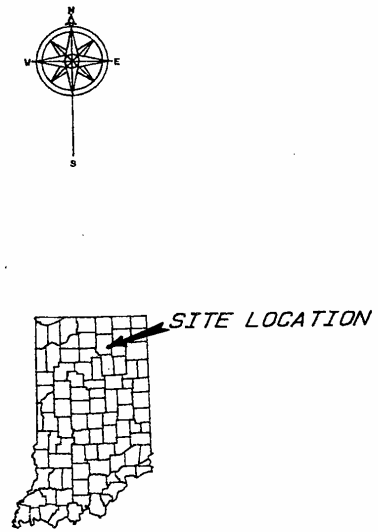
APPENDIX B
SITE PLANS

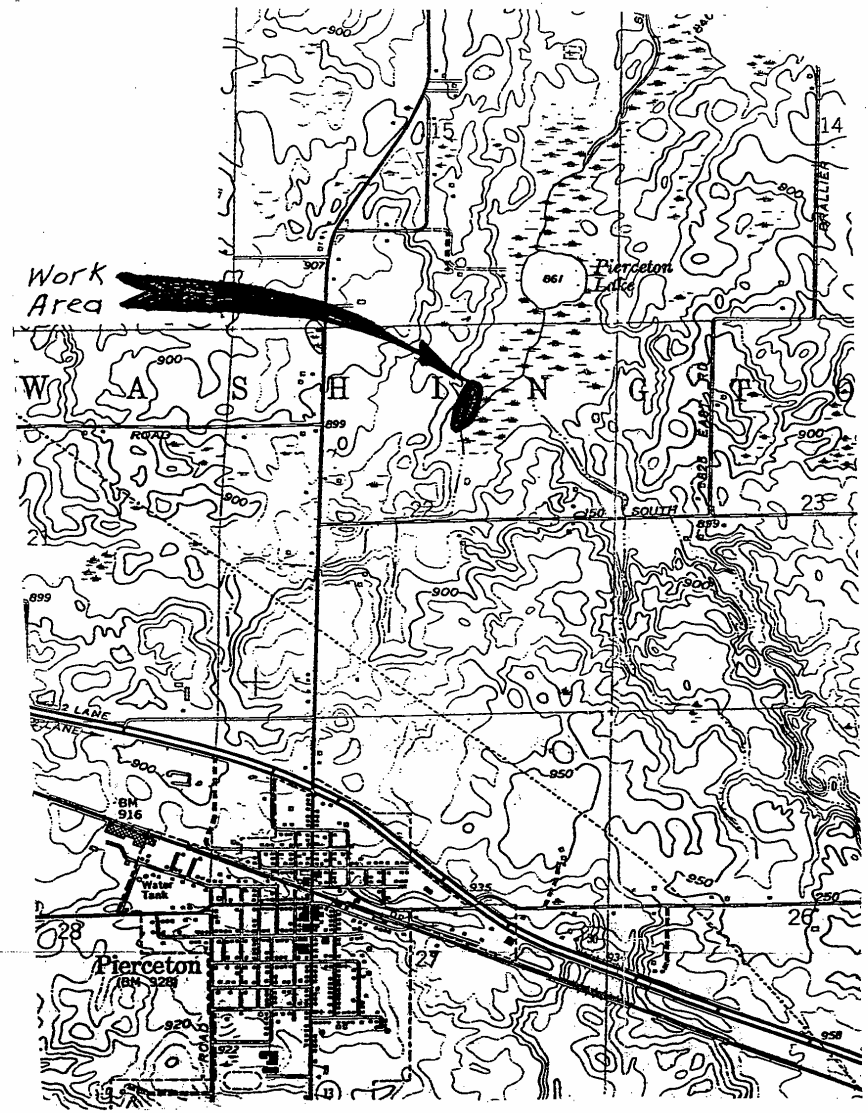
Original NRCS Design Plans
8/30/95

U. S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
DETAIL PLANS FOR

LANGOHR WETLAND

KOSCIUSKO COUNTY, INDIANA





LOCATED IN THE NE QUARTER
OF SECTION 22, T32N, R7E,
WASHINGTON TOWNSHIP

INDEX OF DRAWINGS

APPROVED BY:

Jeff Kay W. Healy
STATE CONSERVATION ENGINEER

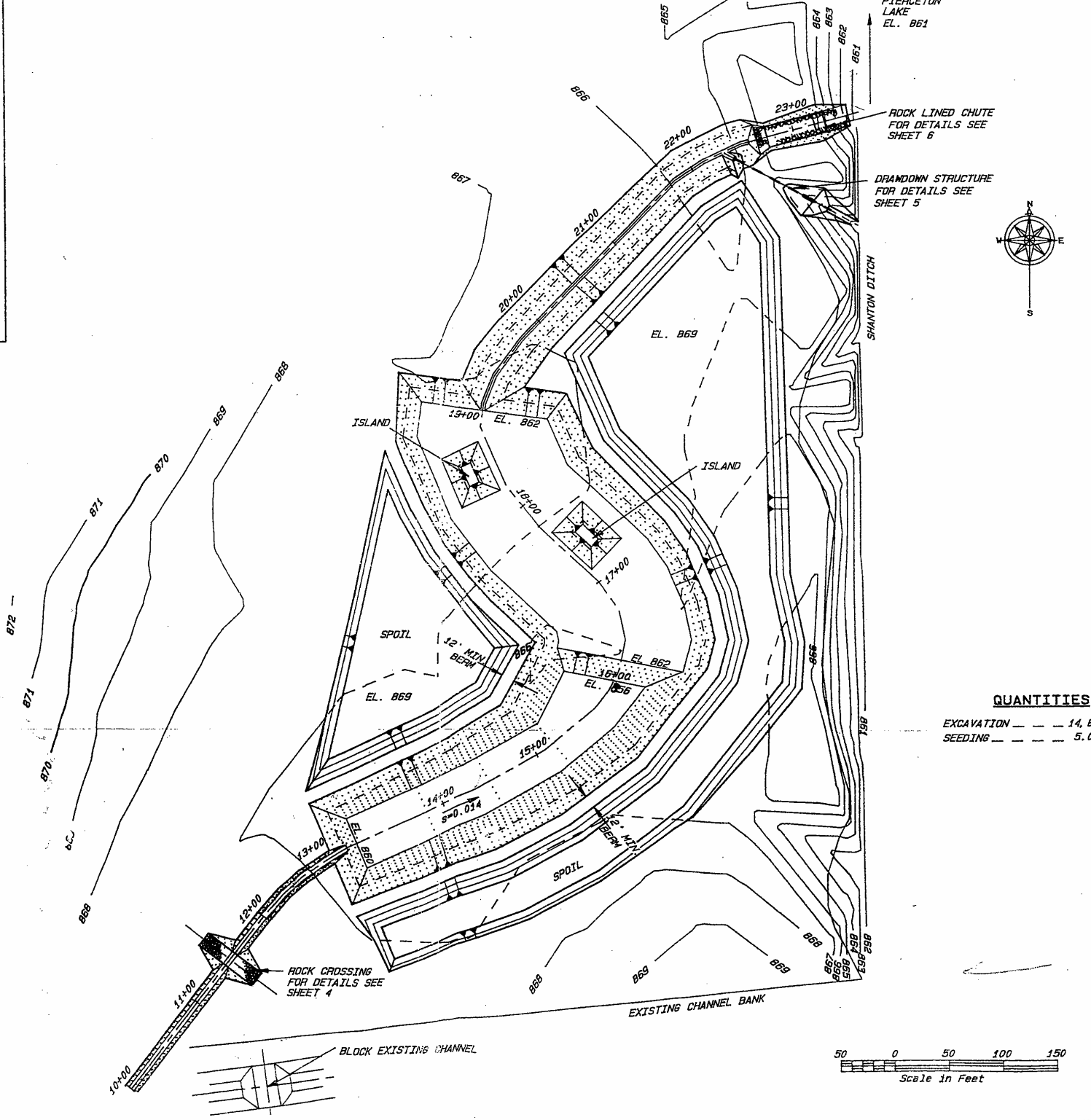
8/30/9
DATE

HYDRAULICS

CROP ACRES = 477 ACRES
WOODS = 55 ACRES
PERMANENT COVER = 74 ACRES
INDUSTRIAL DEVELOPMENT = 32.5 ACRES
EXISTING CHANNEL - APPROX. DIMENSIONS
b = 6 ft., SS = 1:1, s = 0.0008

DESIGN Q = 100 CFS

STA.	WATER ELEV.	AREA SQ. FT.	VEL. FT./SEC.
10+00	867.4	25.9	3.9
13+00	865.7	17.8	5.6
13+14	866.0	408.9	0.2
15+96	866.0	799.1	0.1
16+20	866.0	525.6	0.2
19+00	865.9	93.5	1.1
22+71	865.8	79.3	1.3
22+80	865.7	44.0	2.3
22+90	865.4	19.3	5.2
23+35	863.4	48.5	2.1
23+45	863.4	50.8	2.0



QUANTITIES

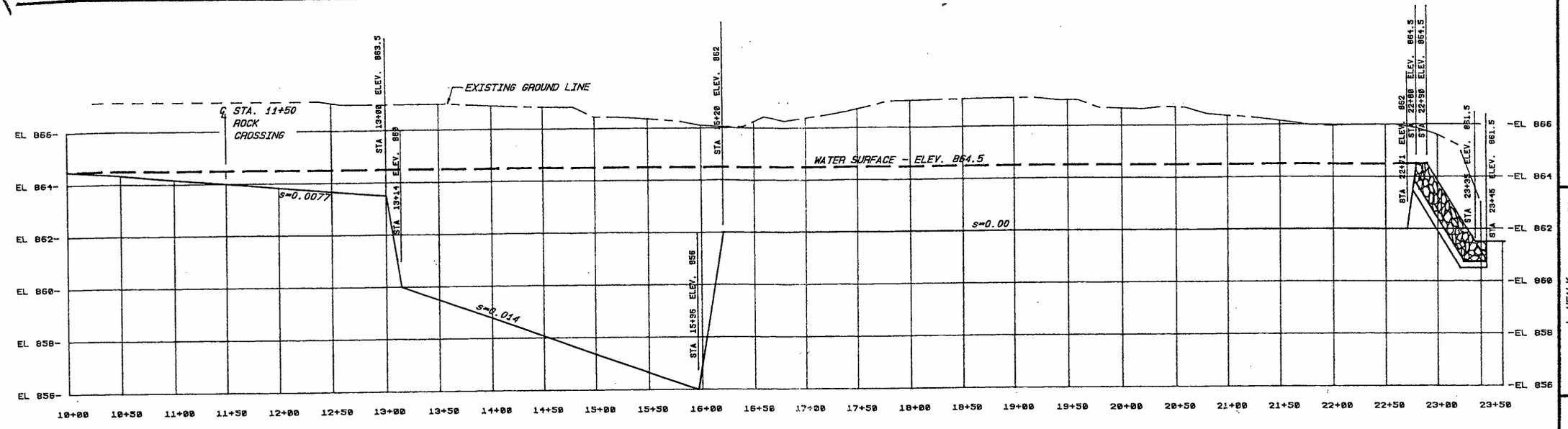
EXCAVATION ___ 14,800 CU. YDS.
SEEDING ___ 5.0 ACRES

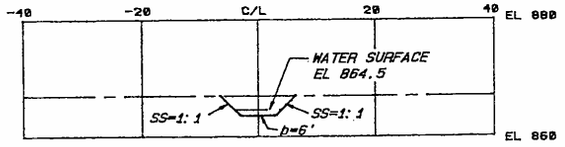
LANGOHR WETLAND
SITE PLAN
KOSCIUSKO COUNTY, INDIANA

Designed J. MEALY Date 11-94
Drawn L. G. GOLDMAN Date 11-94
Traced Date
Approved BY Date
Title

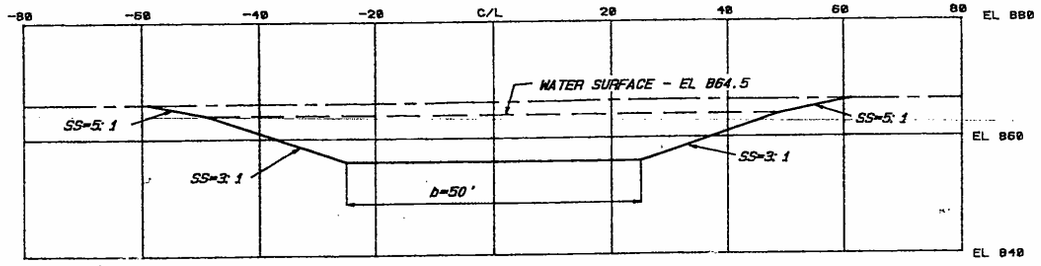
CAD FILE N
REVCONTZ
DRAWING N

SHEET NO. 2 OF

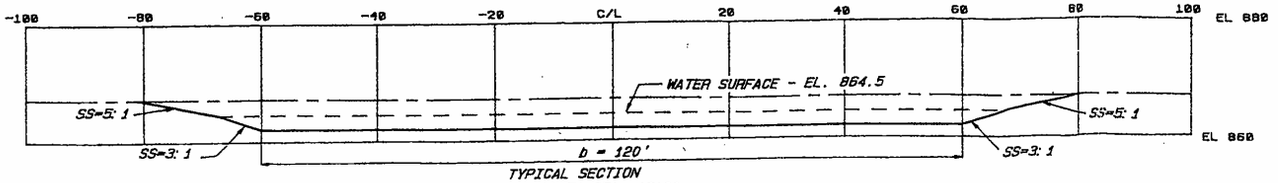




TYPICAL SECTION
STA. 10+00 TO STA. 13+00



TYPICAL SECTION
STA. 13+00 TO STA. 16+20



TYPICAL SECTION
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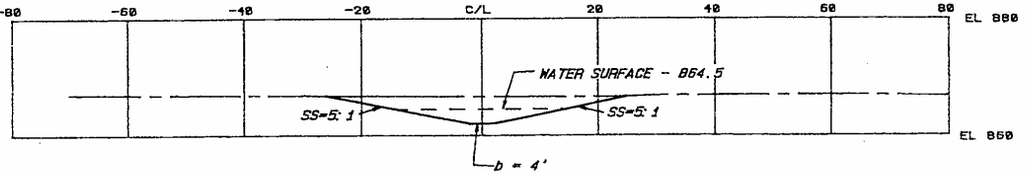
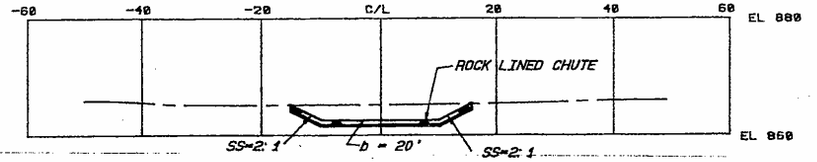
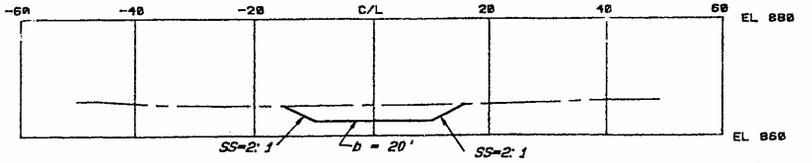


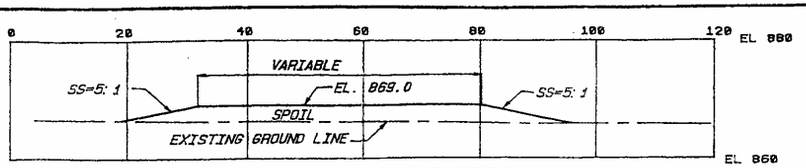
TYPICAL SECTION
STA. 19+00 TO STA. 22+80



TYPICAL SECTION
STA. 22+80 TO STA. 23+45



TYPICAL SECTION
STA. 23+45 TO EXISTING CHANNEL



TYPICAL SECTION - SPOIL PLACEMENT

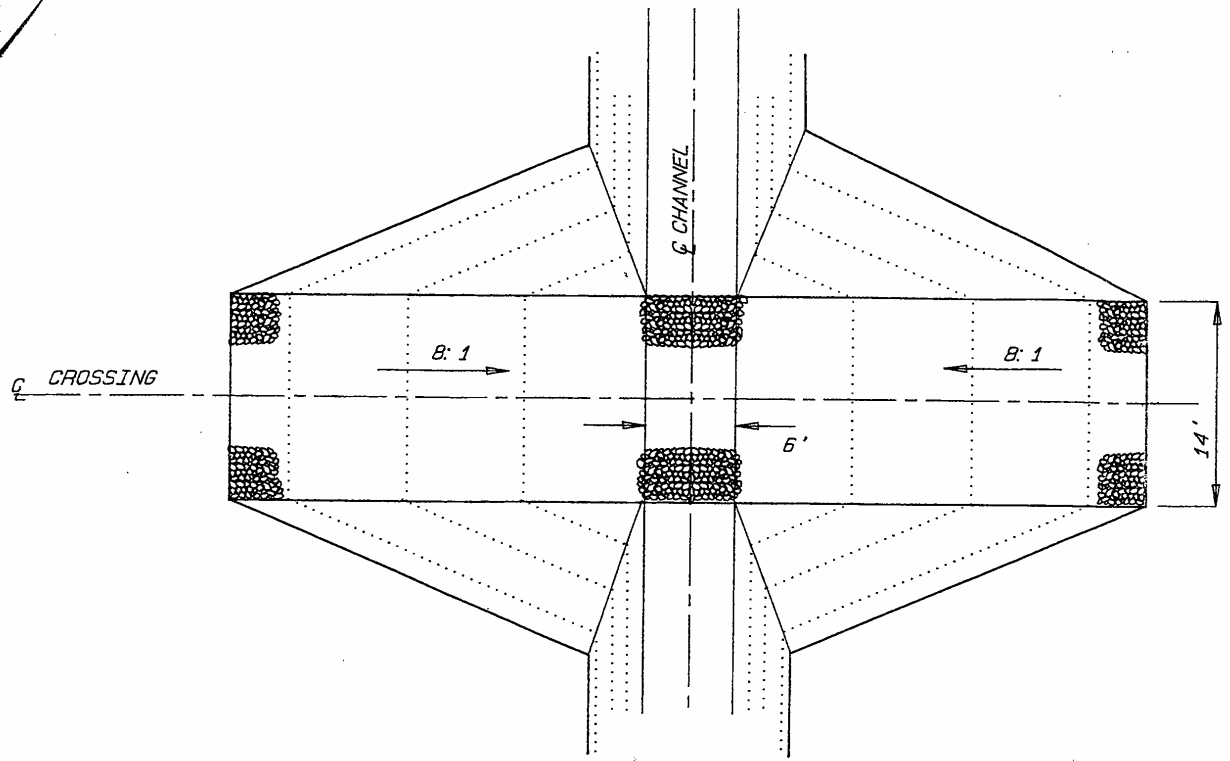
Approved By
Title -
Title -
Designed J. HEALY Date 11-84
Drawn L. G. GOLDMAN Date 11-84
Traced Date
Checked Date

LANGOIR WETLAND
PROFILE AND CROSS SECTIONS
KOSCIUSKO COUNTY, INDIANA

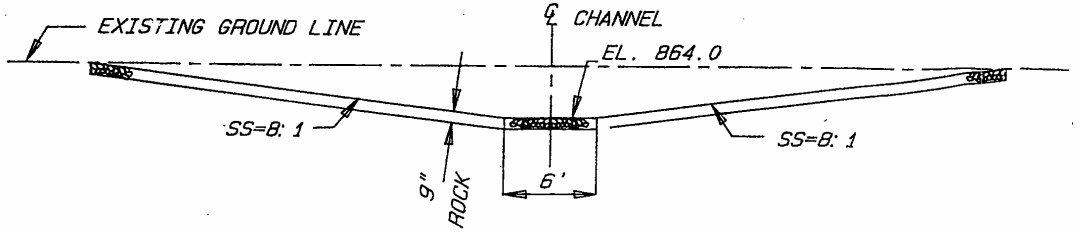
U. S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE

CAD FILE NO.
REVPROF
DRAWING NO.

SHEET NO. 3 OF 6



PLAN VIEW



SECTION ON CENTERLINE OF CROSSING

QUANTITIES

ROCK ------ 36.0 TONS

NOTE:

ROCK SHALL BE INDIANA STATE HIGHWAY SIZE NO. 5 COARSE AGGREGATE OR EQUIVALENT.

Approved By ---- Date ----
Title ----

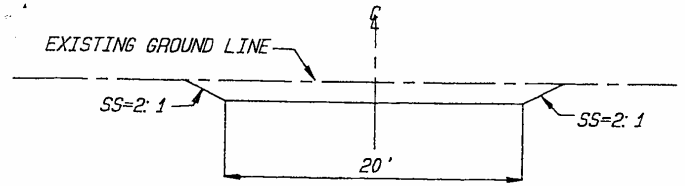
Designed J. HEALY Date 5-95
Drawn G. GOLDMAN Date 5-95
Traced ---- Date ----
Checked ---- Date ----

LANGOER WETLAND
ROCK CROSSING
KOSCIUSKO COUNTY, INDIANA

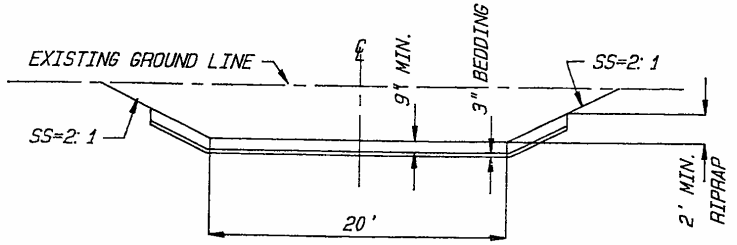
U. S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONERVATION SERVICE

CAD FILE NO.
ROCKXING
DRAWING NO.

SHEET NO. 4 OF 6



SECTION E-E
NOT TO SCALE



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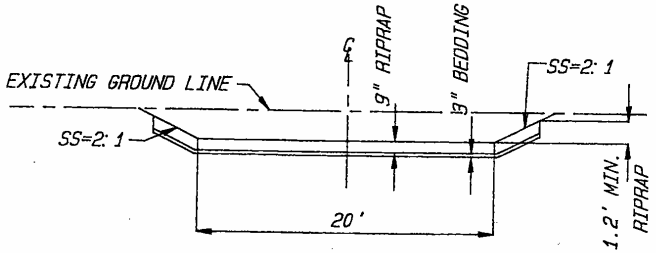
NOT TO SCALE



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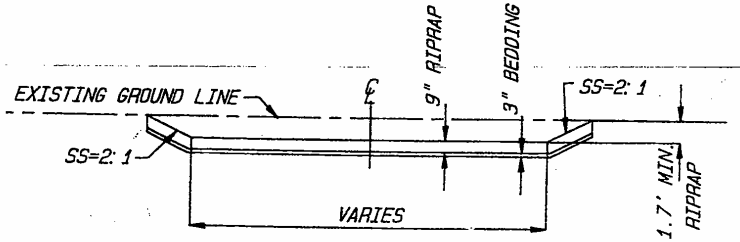

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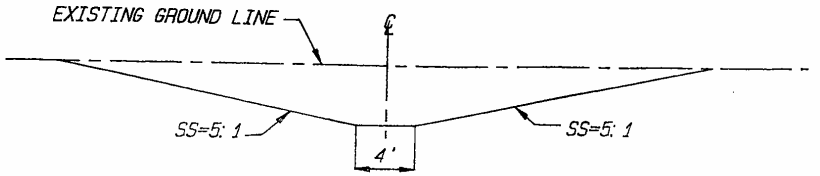

SECTION A-A
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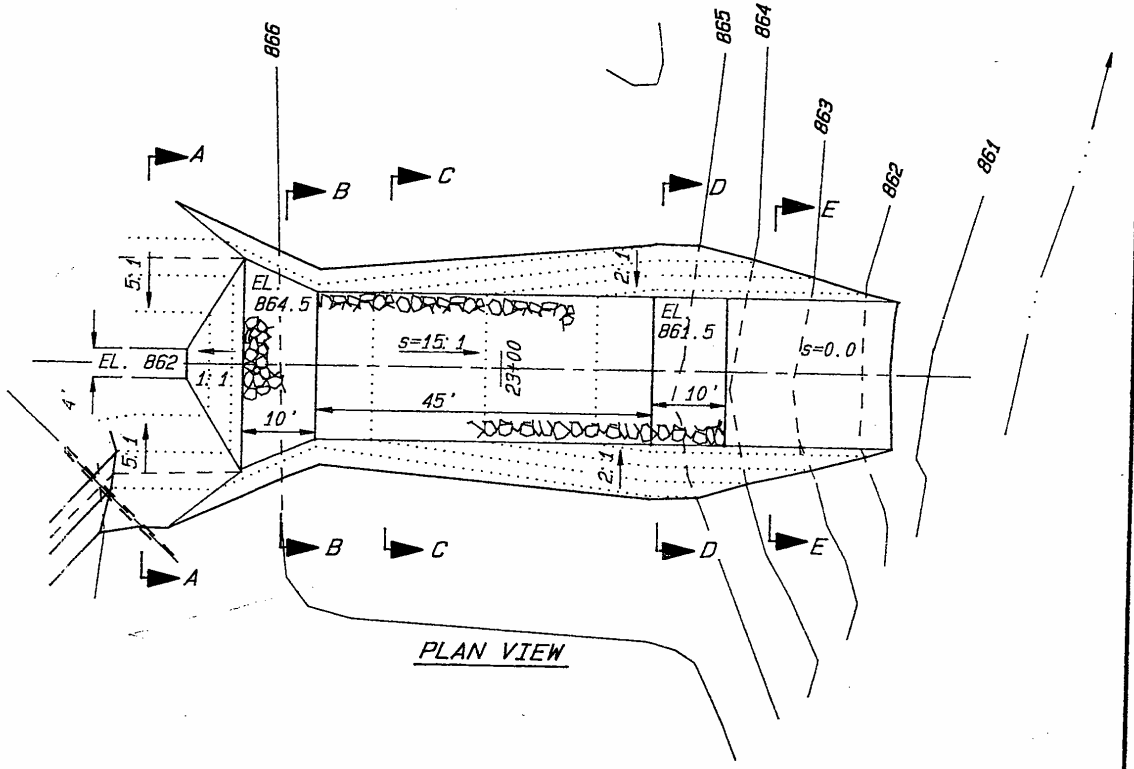
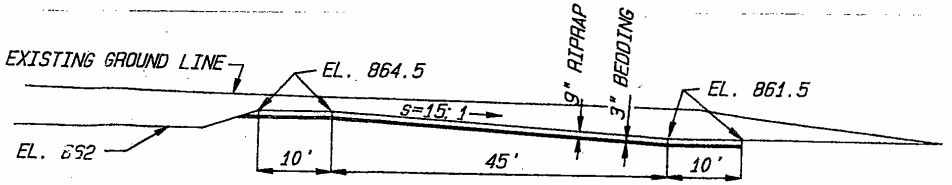


PLAN VIEW



SECTION ON CENTERLINE

NOTES:
1- CHUTE SHALL BE CONSTRUCTED ON SOLID GROUND.
2-AT LEAST 50% OF RIPRAP PIECES SHALL BE LARGER THAN 5 INCHES. THE MAXIMUM SIZE SHALL BE 9 INCHES AND AT LEAST 15% OF THE PIECES BY WEIGHT SHALL BE 3 INCHES.
3- BEDDING SHALL BE INDIANA STATE HIGHWAY #5 COARSE AGGREGATE OR EQUIVALENT.
4- GEOTEXTILE MAY BE USED IN LIEU OF BEDDING WITH PRIOR APPROVAL OF ENGINEER.

QUANTITIES

RIPRAP	75	TONS
BEDDING	20	CU. YDS.

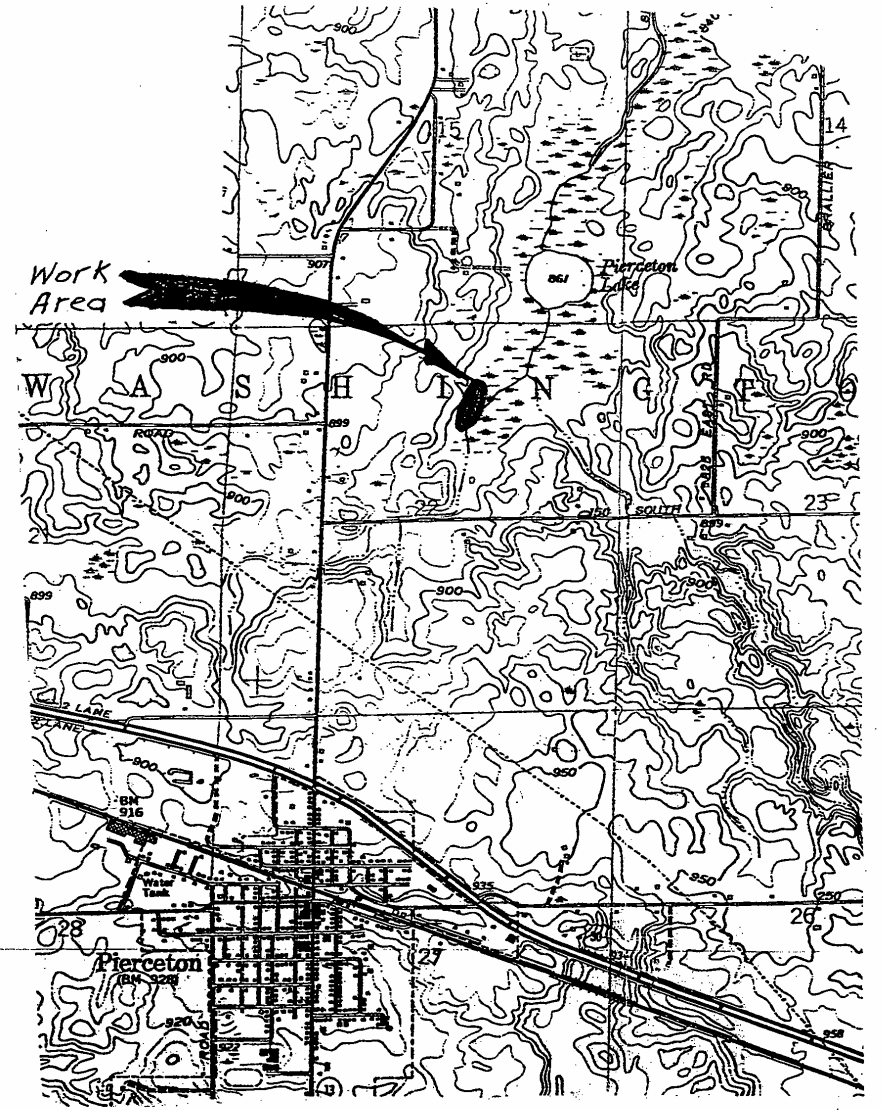
10 0 10 20 30
Scale in Feet

Approved by — Title — Date —
Designed J. HEALY Date 5-95
Drawn G. GOLDMAN Date 5-95
Traced — Date —
Checked — Date —

LANGOHR WETLAND
ROCK LINED CHUTE
KOSCIUSKO COUNTY, INDIANA
U. S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE

CAD FILE NO.
ROCKCH
DRAWING NO.

As-built April 2004



LOCATED IN THE NE QUARTER
OF SECTION 22, T32N, R7E,
WASHINGTON TOWNSHIP

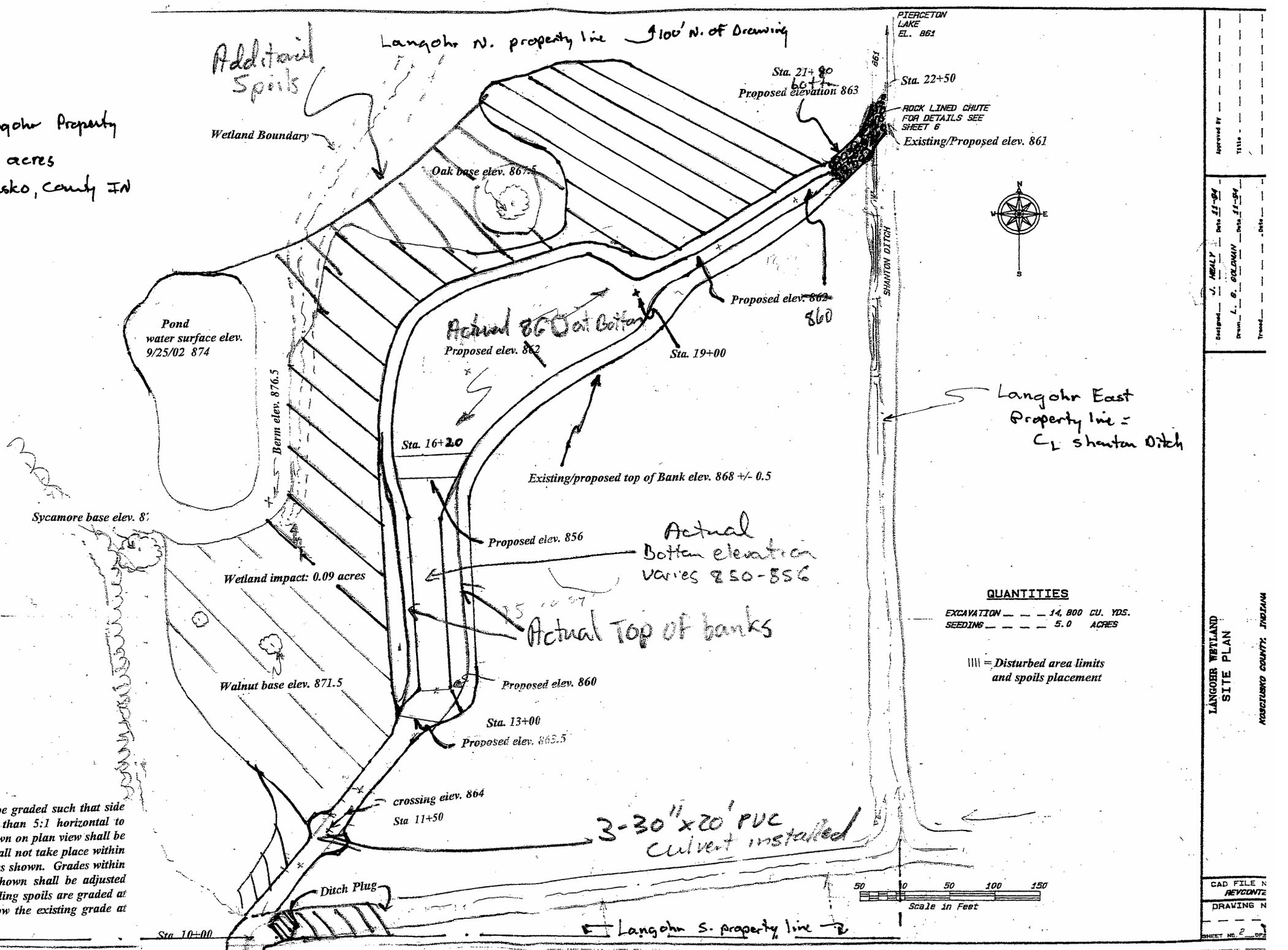
LANGOHR WETLAND

KOSCIUSKO COUNTY, INDIANA

revised 2/3/03

INDEX OF DRAWINGS

William Langohr Property
77± acres
Kosciusko, County IN

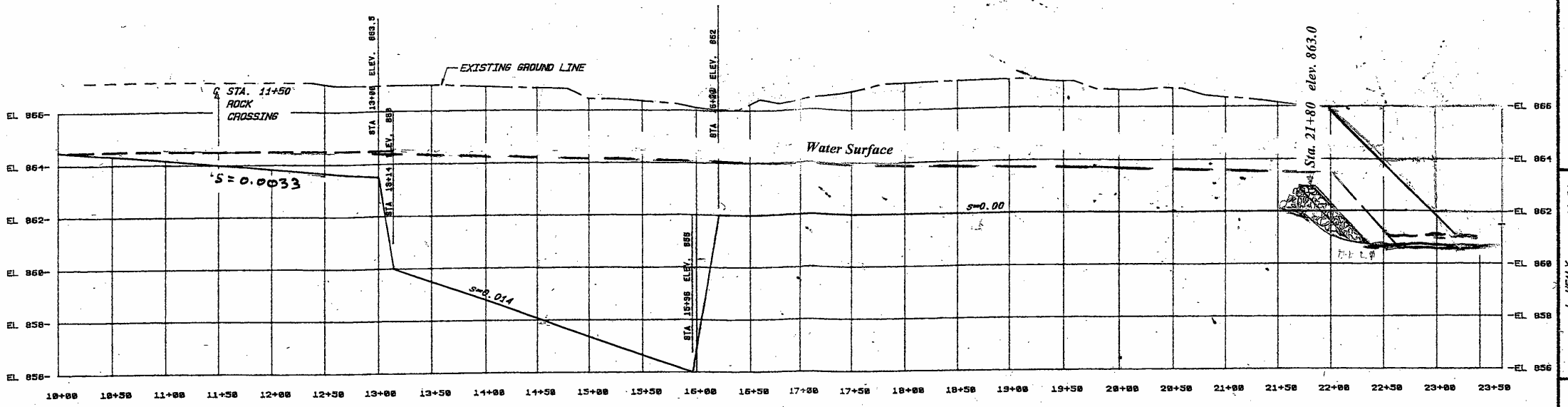


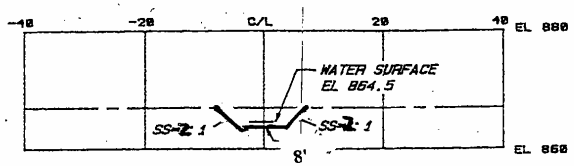
Note: All spoils shall be graded such that side slopes are no steeper than 5:1 horizontal to vertical. All trees shown on plan view shall be protected. Grading shall not take place within the drip line of the trees shown. Grades within 30 feet of the trees shown shall be adjusted such that the surrounding spoils are graded at the same level or below the existing grade at the base of the tree.

Approved BY — Title —
Designed J. HEALY Date 11-94
Drawn L. B. GOLDMAN Date 11-94
Traced Date

LANGOHR WETLAND
SITE PLAN
KOSCIUSKO COUNTY, INDIANA

CAD FILE N
REVCONTE
DRAWING N
SHEET NO. 2 OF 2





TYPICAL SECTION
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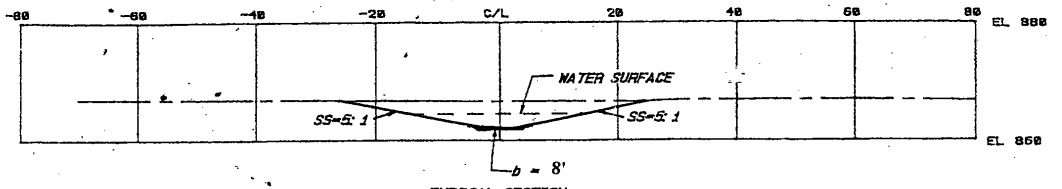
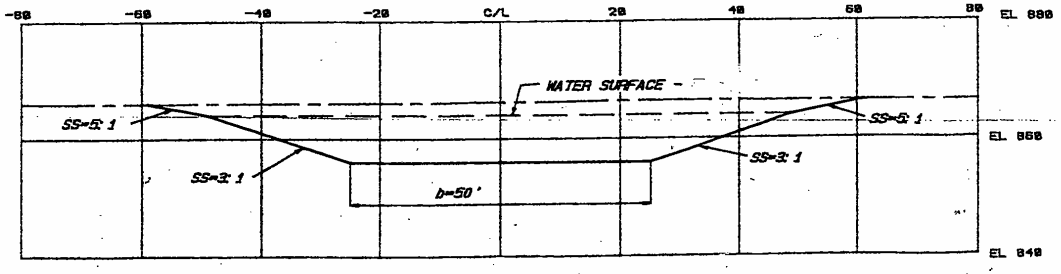
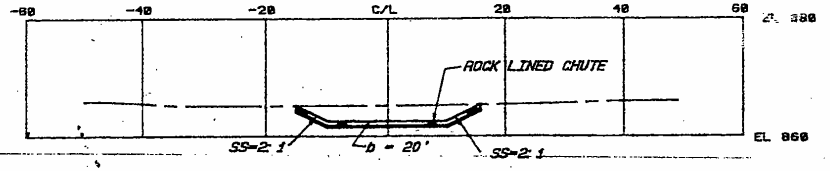


TYPICAL SECTION
STA. 19+00 TO STA. 21+50

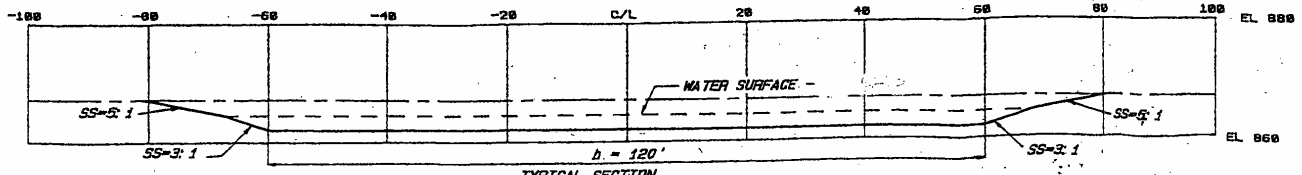


TYPICAL SECTION
STA. 13+00 TO STA. 16+20



TYPICAL SECTION

21+50 to 22+40



TYPICAL SECTION
STA. 16+20 TO STA. 19+00

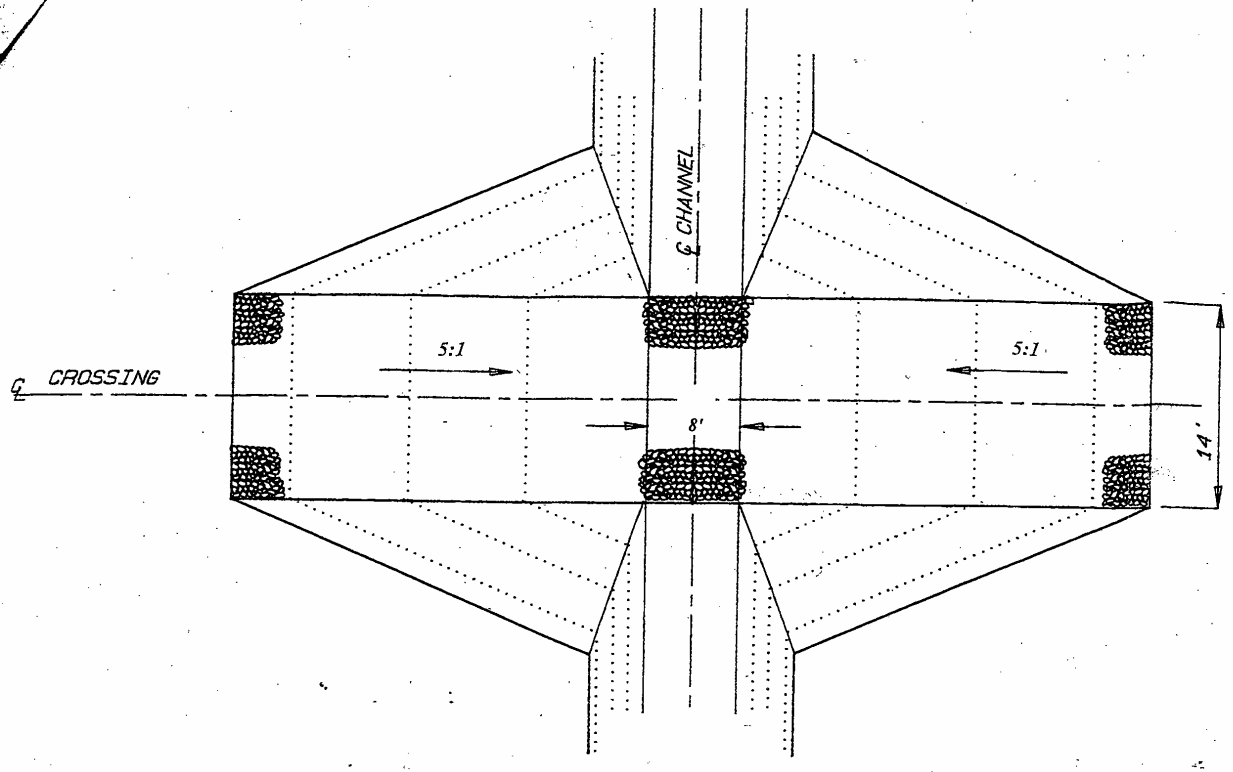
LANGOHR WETLAND
PROFILE AND CROSS SECTIONS

KOSCIUSKO COUNTY, INDIANA

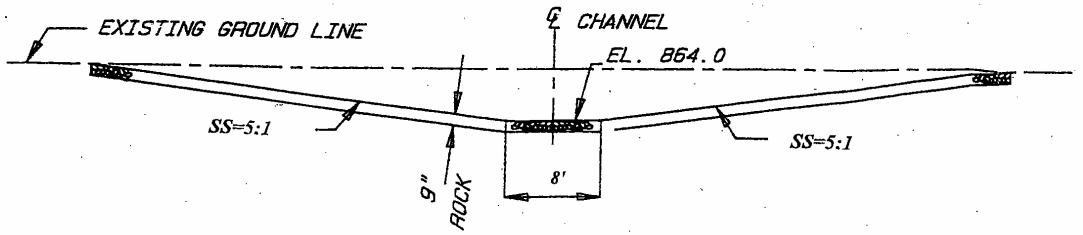
U. S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE

Designed J. HEALY Date 11-94
Drawn L. G. GOLDMAN Date 11-94
Traced Date
Checked Date
Approved By Date
Title
Title
Title

CAD FILE NO.
REVPROF
DRAWING NO.
SHEET NO. 3 OF



PLAN VIEW



SECTION ON CENTERLINE
OF CROSSING

Sta 11+50

QUANTITIES

ROCK ----- 36.0 TONS

NOTE:

ROCK SHALL BE INDIANA STATE HIGHWAY SIZE NO. 5 COARSE AGGREGATE OR EQUIVALENT.

Approved By ---- Title ---- Date ----

Designed J. HEALY Date 5-95

Drawn G. GOLDMAN Date 5-95

Traced ---- Date ----

Checked ---- Date ----

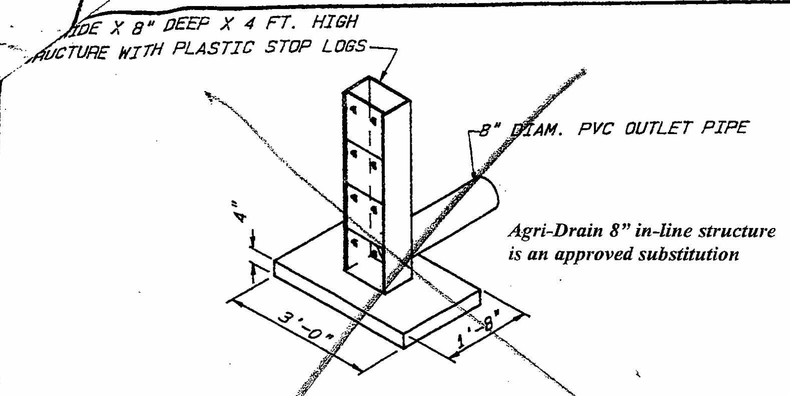
U. S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE

LANGOHR WETLAND
ROCK CROSSING

KOSCIUSKO COUNTY, INDIANA

CAD FILE NO.
ROCKXING

DRAWING NO.

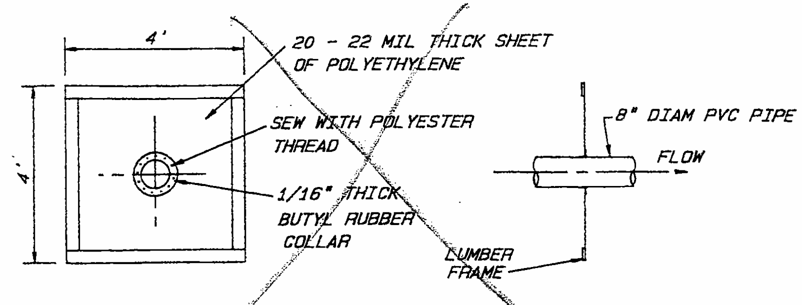


DETAILS OF PVC DROP LOG STRUCTURE

eliminated

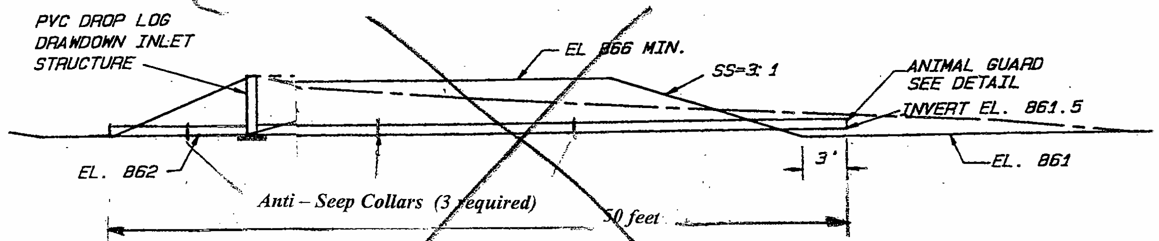
ANTI-SEEP COLLAR CONSTRUCTION PROCEDURE

1- CUT POLYETHYLENE SHEET TO REQUIRED DIMENSIONS.
2- CUT A HOLE IN CENTER OF SHEET TO OUTSIDE DIAMETER OF PIPE.
3- CUT BUTYL RUBBER COLLAR 8" LARGER THAN OUTSIDE DIAMETER OF PIPE.
4- CUT HOLE IN CENTER OF BUTYL COLLAR 3" SMALLER THAN OUTSIDE DIAMETER OF PIPE.
5- FASTEN BUTYL RUBBER COLLAR TO POLYETHYLENE SHEET WITH DOUBLE STICK TAPE SO THAT HOLES ARE CONCENTRIC AND SEW TOGETHER WITH POLYESTER THREAD THROUGH TAPE.
6- PLACE MASTIC OR ROOFING CEMENT AT LOCATION ON PIPE FOR ANTI-SEEP COLLAR.
7- FORCE BUTYL RUBBER COLLAR AND POLYETHYLENE SHEET OVER UPSTREAM END OF PIPE, MOVE TO LOCATION WHERE MASTIC OR ROOFING CEMENT IS APPLIED, AND POSITION ANTI-SEEP COLLAR IN PLACE.
8- FASTEN TO FRAME AS SHOWN, WITH STAPLES OR ROOFING NAILS OR USE OTHER METHODS TO HOLD ANTI-SEEP COLLAR IN PLACE DURING PLACEMENT OF COMPACTED FILL.
9- FASTEN BUTYL COLLAR TO PIPE WITH PLASTIC WATERPROOF TAPE, STAINLESS STEEL BAND, NYLON ROPE OR OTHER SIMILAR MATERIAL.
10- APPLY MASTIC OR ROOFING CEMENT TO INSURE THAT INSTALLATION IS WATERPROOF.

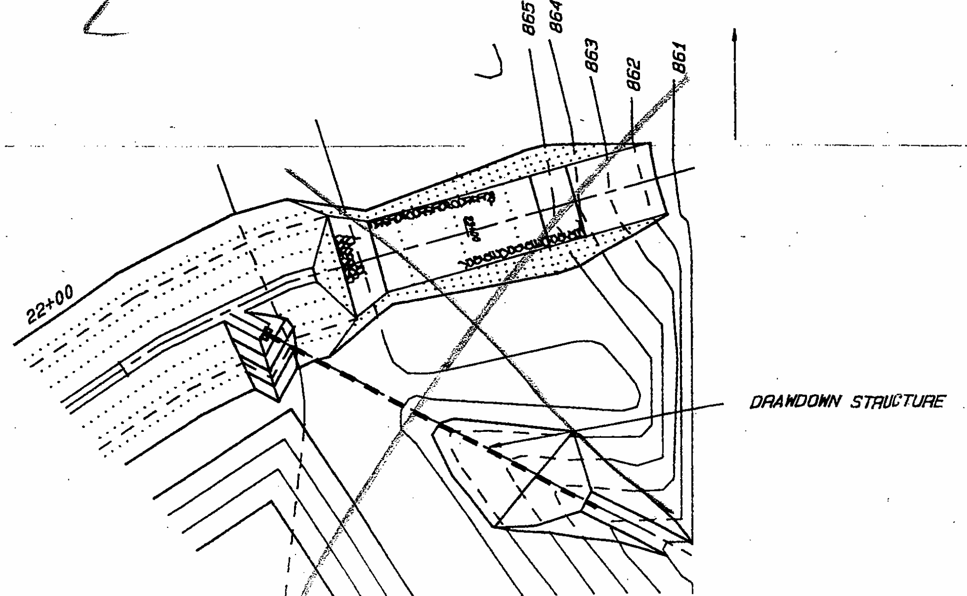


DETAILS OF ANTI-SEEP COLLAR

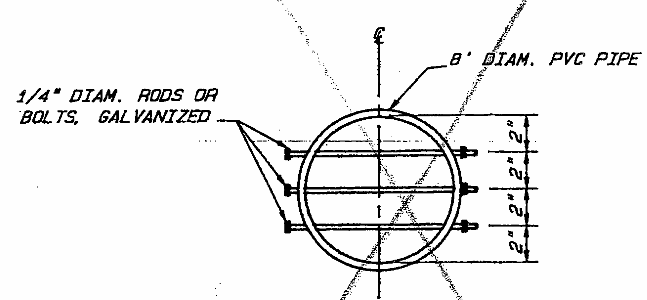
COMMERCIAL COLLARS ARE AVAILABLE



SECTION ALONG CENTERLINE OF DRAWDOWN STRUCTURE



STRUCTURE LOCATION



DETAILS OF ANIMAL GUARD

QUANTITIES

DRAWDOWN STRUCTURE _ _ _ _ SUM JOB

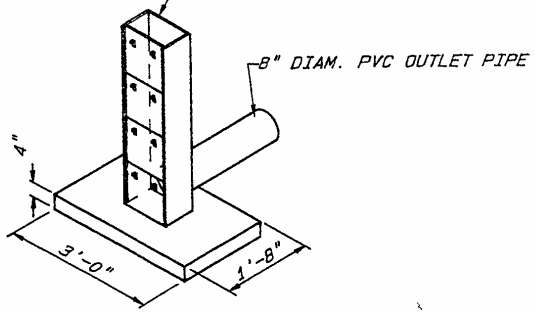
NOT TO SCALE

Designed J. HEALY Date 5-95
Drawn G. GOLDMAN Date 5-95
Traced ___ Date ___
Checked ___ Date ___
Approved by ___
Title ___
Title ___

LANGOHR WETLAND
DRAWDOWN STRUCTURE
KOSCIUSKO COUNTY, INDIANA
U. S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE

CAD FILE NO. REVSTR
DRAWING NO.
SHEET NO. 5 OF 6

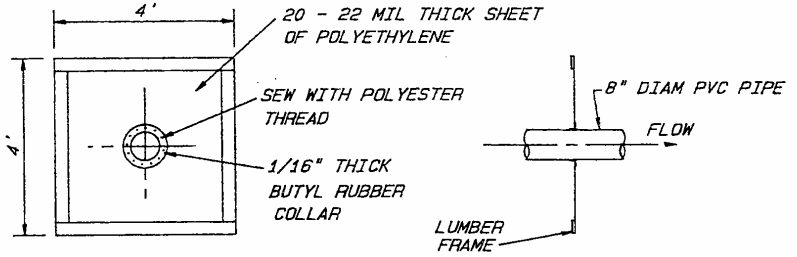
IDE X 8" DEEP X 4 FT. HIGH
RUCTURE WITH PLASTIC STOP LOGS



DETAILS OF PVC DROP LOG STRUCTURE

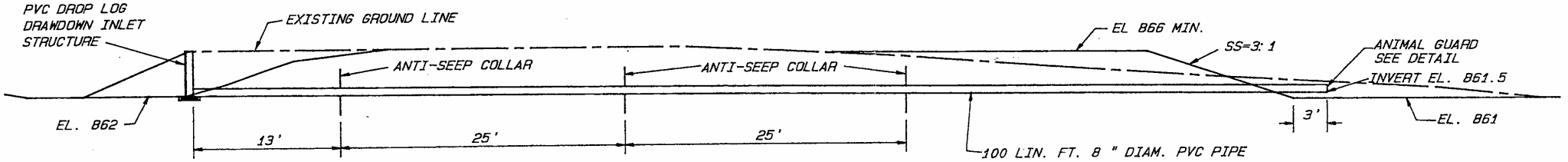
ANTI-SEEP COLLAR CONSTRUCTION PROCEDURE

1- CUT POLYETHYLENE SHEET TO REQUIRED DIMENSIONS.
2- CUT A HOLE IN CENTER OF SHEET TO OUTSIDE DIAMETER OF PIPE.
3- CUT BUTYL RUBBER COLLAR 8" LARGER THAN OUTSIDE DIAMETER OF PIPE.
4- CUT HOLE IN CENTER OF BUTYL COLLAR 3" SMALLER THAN OUTSIDE DIAMETER OF PIPE.
5- FASTEN BUTYL RUBBER COLLAR TO POLYETHYLENE SHEET WITH DOUBLE STICK TAPE SO THAT HOLES ARE CONCENTRIC AND SEW TOGETHER WITH POLYESTER THREAD THROUGH TAPE.
6- PLACE MASTIC OR ROOFING CEMENT AT LOCATION ON PIPE FOR ANTI-SEEP COLLAR.
7- FORCE BUTYL RUBBER COLLAR AND POLYETHYLENE SHEET OVER UPSTREAM END OF PIPE, MOVE TO LOCATION WHERE MASTIC OR ROOFING CEMENT IS APPLIED, AND POSITION ANTI-SEEP COLLAR IN PLACE.
8- FASTEN TO FRAME AS SHOWN, WITH STAPLES OR ROOFING NAILS OR USE OTHER METHODS TO HOLD ANTI-SEEP COLLAR IN PLACE DURING PLACEMENT OF COMPACTED FILL.
9- FASTEN BUTYL COLLAR TO PIPE WITH PLASTIC WATERPROOF TAPE, STAINLESS STEEL BAND, NYLON ROPE OR OTHER SIMILAR MATERIAL.
10- APPLY MASTIC OR ROOFING CEMENT TO INSURE THAT INSTALLATION IS WATERPROOF.

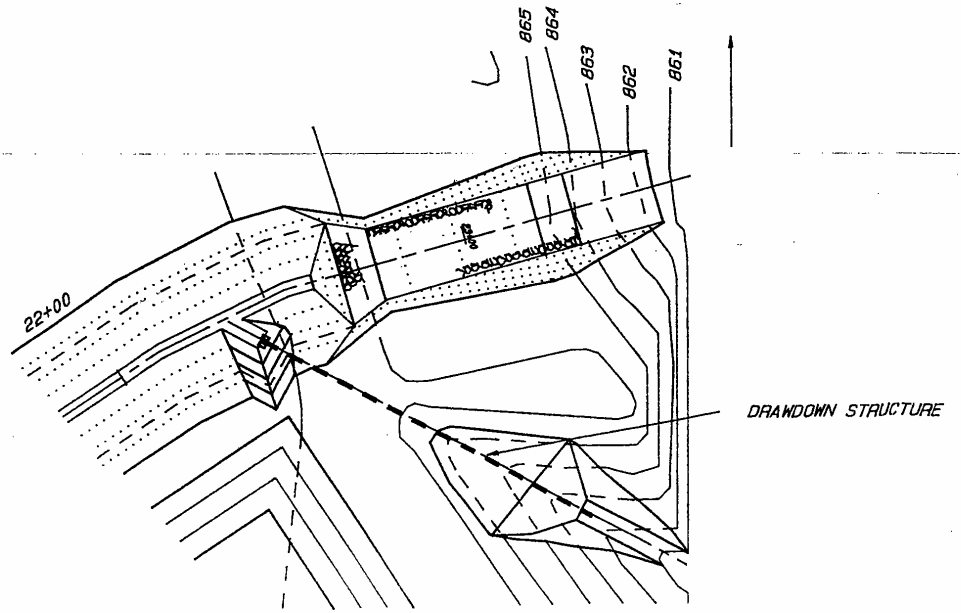


DETAILS OF ANTI-SEEP COLLAR

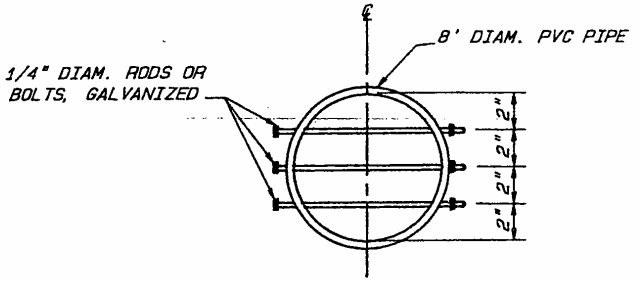
COMMERCIAL COLLARS ARE AVAILABLE



SECTION ALONG CENTERLINE OF DRAWDOWN STRUCTURE



STRUCTURE LOCATION



DETAILS OF ANIMAL GUARD

QUANTITIES

DRAWDOWN STRUCTURE_ _ _ _ _SUM JOB

NOT TO SCALE

Approved by — Title — Date —
Designed J. HEALY Date 5-95
Drawn G. GOLDMAN Date 5-95
Traced — Date —
Checked — Date —

LANGDON WETLAND
DRAWDOWN STRUCTURE
KOSCIUSKO COUNTY, INDIANA

U. S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE

CAD FILE NO. REVSTR
DRAWING NO.
SHEET NO. 5 OF 6

APPENDIX C
PLANTING LIST

WETLAND PLANTING MIX

Common Name	Botanical Name
Bristly Sedge	*Carex comosa*
Common Rush	*Juncus afinis*
Blue Lobelia	*Lobelia siphilitica*
Monkey Flower	*Mimulus rigens*
Obedient Plant	*Physostegia virginiana*
Pickerel Weed	*Pontederia cordata*
Hardstem Bulrush	*Scirpus acutus*
Arrowhead	*Sagittaria latifolia*
Lizard's Tail	*Saururus cernuus*
Cup Plant	*Silphium perfoliatum*
Golden Alexanders	*Zizia aurea*
Prairie Cord Grass	*Spartina pectinata*
Swamp Rose	*Rosa palustris*
Foxglove	*Penstemon digitalis*
Cardinal Flower	*Lobelia cardinalis*
Marsh Blazing Star	*Liatris spicata*
Rose Mallow	*Hibiscus sp.*
New England Aster	*Aster novae-angliae*

SLOPE STABALIZATION PLANTING MIX

Temporary Cover:

Common Name	Botanical Name
Redtop	*Agrostis alba*
Seed Oats	*Avena sativa*
Annual Rye	*Lolium multiflorum*
Timothy	*Phleum pretense*

Permanent Grasses:

Common Name	Botanical Name
Big Bluestem Grass	*Andopogon gerardii*
Little Bluestem Grass	*Andopogon scoparius*
Side-Oats Grama	*Bouteloua curtipendula*
Canada Wild Rye	*Elymus canadensis*
Switch Grass	*Panicum virgatum*
Indian Grass	*Sorghastrum nutans*

PRAIRIE PLANTING MIX

Permanent Grasses:

Common Name	**Botanical Name**
Big Bluestem Grass	*Andopogon gerardii*
Little Bluestem Grass	*Andopogon scoparius*
Side-Oats Grama	*Bouteloua curtipendula*
Canada Wild Rye	*Elymus canadensis*
Switch Grass	*Panicum virgatum*
Indian Grass	*Sorghastrum nutans*

Temporary Cover:

Common Name	**Botanical Name**
Seed Oats	*Avena sativa*
Annual Rye	*Lolium multiflorum*
Timothy	*Phleum pretense*

Forbs:

Common Name	**Botanical Name**
Wild Columbine	*Aquilegia canadensis*
Butterfly Weed	*Asclepias tuberosa*
New England Aster	*Aster novae-angliae*
Partridge Pea	*Cassia fasciculata*
Tall Coreopsis	*Coreopsis tripteris*
Broad-Leaved Purple Coneflower	*Echinacea purpurea*
Rattlesnake Master	*Eryngium yuccifolium*
Downy Sunflower	*Helianthus mollis*
False Sunflower	*Heliopsis helianthoides*
Round-Headed Bush Clover	*Lespedeza capitata*
Rough Blazing Star	*Liatris aspera*
Wild Bergamot	*Monarda fistulosa*
Purple Prairie Clover	*Petalostemum purpureum*
Common Mountain Mint	*Pycnanthemum virginianum*
Yellow Coneflower	*Ratibida pinnata*
Black-Eyed Susan	*Rudbeckia hirta*
Early Goldenrod	*Solidago juncea*
Hairy Tall Ironweed	*Vernonia altissima taeniotricha*